

Genetic Diversity of Chinook Salmon from the Kuskokwim River.

Abstract: The subsistence fishery for Chinook salmon in the Kuskokwim Management Area is one of the largest and most significant in Alaska. Low returns in recent years have yielded shortfalls in escapements basin-wide. This has resulted in fishing restrictions, which directly affect local communities. Sustained productivity of salmon relies on maintenance of genetic diversity through informed management of the resource. We investigated the genetic diversity of Chinook salmon from the Kuskokwim River using two types of genetic markers, allozymes and microsatellites. Analysis of genetic data found evidence of significant structure in these Chinook salmon populations. Populations were assigned to four groups based on genetic characteristics and geographic proximity, three within the Kuskokwim River (Upper, Middle and Lower) and the fourth in Kuskokwim Bay. The baseline of both marker types will be useful for estimating stock composition of commercial and subsistence harvests, investigating run timing and entry patterns within the river, and examining the effectiveness of management actions for the conservation of the resource. It can also be used to aid in the identification of Kuskokwim River salmon in studies of Chinook salmon on the high seas.

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